REMARKS

Applicants submit these remarks in response to the Office Action dated March 4, 2005 ("Office Action"). This Response is filed three months from the date of the Office Action. Applicants believe that no Extension of Time is necessary for filing the present Response. In the event that Applicants are incorrect in their assumption, please charge any fee due in connection with this submission to Deposit Account No. 23-2415.

Claims 1-27 are pending in the application.

Applicants note with appreciation the indication in the Office Action (paragraph 1) that the rejections under 35 U.S.C 102 (b) set forth in the prior Office Action are withdrawn.

In paragraph 2 of the Office Action, it is alleged that the invention as disclosed in Claims 1-27 is directed to non-statutory subject matter. Based on this assertion, Claims 1-27 are rejected under 35 U.S.C 101 (paragraph 15 of the Office Action) and under 35 U.S.C 112, first paragraph (paragraph 17 of the Office Action). The rejections under 35 U.S.C 101 and the first paragraph of 35 U.S.C 112 are traversed for at least the following reasons.

Rejecting Claim 1-27 for alleged non-statutory subject matter at this late stage is improper

Applicants are baffled by the tardiness in asserting a rejection under 35 U.S.C 101 at this late stage of the examination of the application. The claims now rejected as allegedly not setting forth statutory subject matter are the same claims originally filed in the application. These claims were examined on the merits over 17 months ago by the present Examiner. In the Office Action dated January 30, 2004 the Examiner did not assert any rejections based on statutory subject matter grounds. The Examiner issued prior art rejections in a 13 page analysis of each of Applicants' 27 claims. Applicants addressed the rejections set forth by the Examiner in an extensive response filed June 30, 2004. Applicants provided arguments against the prior art rejections that were found by the Examiner to be persuasive and resulted in the prior art rejections being withdrawn. It appears that only after Applicants overcame the prior art rejections that the Office is now alleging that none of

the claims are directed to patentable subject matter under section 101 of the patent statute. Applicants respectfully submit that this late assertion of a rejection under section 101 is improper.

MPEP Section 2106 requires that a determination of whether a claim presents any potential issues under section 101 be made in the initial examination of the claim. Specifically, Section 2106 II provides the following:

"It is essential that patent applicants obtain a prompt yet complete examination of their applications. Under the principles of compact prosecution, each claim should be reviewed for compliance with every statutory requirement for patentability in the initial review of the application, even if one or more claims are found to be deficient with respect to some statutory requirement. Thus, Office personnel should state all reasons and bases for rejecting claims in the first Office action. Deficiencies should be explained clearly, particularly when they serve as a basis for a rejection. Whenever practicable, Office personnel should indicate how rejections may be overcome and how problems may be resolved. A failure to follow this approach can lead to unnecessary delays in the prosecution of the application.

Prior to focusing on specific statutory requirements, Office personnel must begin examination by determining what, precisely, the applicant has invented and is seeking to patent, and how the claims relate to and define that invention. (As the courts have repeatedly reminded the Office: "The goal is to answer the question 'What did applicants invent?' " *In re Abele*, 684 F.2d 902, 907, 214 USPQ 682, 687. Accord, e.g., *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053, 1059, 22 USPQ2d 1033, 1038 (Fed. Cir. 1992).) Consequently, Office personnel will no longer begin examination by determining if a claim recites a "mathematical algorithm." Rather they will review the complete specification, including the detailed description of the invention, any specific embodiments that have been disclosed, the claims and any specific, substantial, and credible utilities that have been asserted for the invention."
(http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2106.htm#sect2106)

Contrary to the procedures set forth in MPEP 2106 and the legal principles supporting those procedures, the Office Action appears to set forth statutory subject matter rejections as an

afterthought. It is Applicants position that the position now taken in the Office Action is improper and withdrawal thereof is respectfully requested.

The invention as defined by Claims 1-27 provides a useful, concrete and tangible result

Applicants respectfully submit that the Office Action did not provide any analysis as to why all of Claims 1-27 are allegedly directed to non-statutory subject matter.

The Office has the burden to make *a prima facie* case that the claimed invention as a whole is directed to an abstract idea that does not produce a useful result. This burden is acknowledged by the Office and is clearly incorporated in its procedures. Section 2106 provides:

"Office personnel have the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. **101**. Compare *Musgrave*, 431 F.2d at 893, 167 USPQ at 289; *In re Foster*, 438 F.2d 1011, 1013, 169 USPQ 99, 101 (CCPA 1971). Further, when such a rejection is made, Office personnel must expressly state how the language of the claims has been interpreted to support the rejection."

In determining whether a claim recites a method that produces a useful result, MPEP 2106 directs the Examiner to Applicants' specification. This section of the MPEP states that "[t]he applicant is in the best position to explain why an invention is believed useful. Office personnel should therefore focus their efforts on pointing out statements made in the specification that identify all practical applications for the invention. Office personnel should rely on such statements throughout the examination when assessing the invention for compliance with all statutory criteria. An applicant may assert more than one practical application, but only one is necessary to satisfy the utility requirement. Office personnel should review the entire disclosure to determine the features necessary to accomplish at least one asserted practical application."

It is respectfully submitted that the Office Action failed to establish *a prima facie* case that Claims 1-27 do not set forth patentable subject matter. The Office Action merely focuses on the phrase "input

patterns" as recited in the present claims. However, the standard for assessing whether a claim sets forth patentable subject matter requires that each limitation of the claim be considered. Again Section 2106 of the MPEP states: "[o]ffice personnel should begin claim analysis by identifying and evaluating each claim limitation. For processes, the claim limitations will define steps or acts to be performed."

As set forth for example in Claim 1, the present invention is directed to a method of mapping a set of input patterns to an m-dimensional space. The claimed method includes step (f) using a supervised machine learning technique to determine a mapping function based on the training set T; and step (g) using the mapping function determined in step (f) to map additional patterns.

In paragraphs [00039] and [00040] on page 15, Applicants' specification refers to the phrase "input patterns" as follows:

"According to the method of the invention, at least some of all possible pairs of objects (patterns) from a selected plurality of objects are compared, and the resulting pairwise relationships are recorded in a database. As would be apparent to one skilled in the relevant art given the discussion herein, there are a number of approaches that can be taken in accordance with the method of the invention to select objects to be compared.

When applying the method of the invention to the field of molecular similarity, for example, one approach for selecting objects (compounds) is to judiciously select a subset of diverse objects (compounds) that would serve to define a reasonable compound space for similarity/dissimilarity analysis. In an embodiment, a subset of about 100-1000 diverse compounds can be selected for pairwise comparison."

Applicants' specification therefore provides a description wherein the phrase "input patterns" relates to objects such as compounds and relationships between the compounds.

Moreover, paragraph [00044] on page 14 of Applicants' specification provides:

"This second selection approach can be used, for example, in the field of molecular similarity to mine a database of compounds and identify compounds similar to compounds having known therapeutic, agricultural or other commercial value. As described herein, the compounds selected from the database can be multidimensionally scaled to an m-dimensional vector space and used to determine one or more nonlinear mapping functions. These mapping functions can then be used to map other compounds in the same or a different database to the m-dimensional vector space in order to determine which compounds in the database may be commercially valuable. Compounds having known therapeutic, agricultural or other commercial value can be selected and mapped to the m-dimensional vector space to identify particular areas or regions of importance. New compounds which map to the same area or region of the m-dimensional vector space as the compounds having known commercial or therapeutic value are likely to be similar to the compounds having the known commercial therapeutic, agricultural or other commercial value."

Accordingly, contrary to the assertion in the Office Action, the "input patterns" recited in the present claims are not abstract ideas. The steps of using a supervised machine learning technique to determine a mapping function based on the training set T and using the mapping function determined to map additional patterns are part of a process that allows identification of compounds based on actual properties. As described throughout the specification, the process set forth in the present claims is useful in identifying compounds having desired properties.

Contrary to the position taken in the Office Action the mapping of compounds based on relationships is a useful, concrete and tangible result.

Accordingly, there is no *prima facie* case for a lack of statutory subject matter. Withdrawal of the rejections under sections 101 and 112 first paragraph is therefore in order and is respectfully requested.

CONCLUSION

Applicants believe that for the reasons set forth above, claims 1-27 are in condition for allowance and respectfully request prompt and favorable action. Please charge any fee due in connection with this submission to Deposit Account No. 23-2415.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (858) 350-2337.

Respectfully submitted,

WILSON SONSINI GOODRICH & ROSATI
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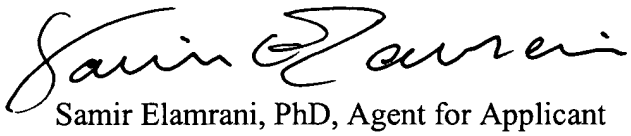

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